

REMARKS

The Applicant thanks the Examiner for his examination of the present application and indication of allowability in claims 2 and 4-20.

At page 2 of the Office Action, the Examiner rejects claims 1, 3 and 21 under 35 USC 102(b) as being anticipated by Hamaguchi et al. (US Patent No. 5,422,867). These rejections are respectfully traversed.

The Examiner asserts that the claims merely read on a program within the CPU to control the track seeking operation in an optical disk apparatus. The Applicant respectfully disagrees. As recited in claim 1, a carriage servo control system of the present application comprises (1) error signal producing means, (2) periodic signal producing means, (3) duty ratio control means, (4) drive signal producing means and (5) supply means. In particular, with respect to the essential components of (3) and (4), the duty ratio control means changes a duty ratio of the periodic signal on a basis of characteristic of the error signal produced to produce a changed periodic signal having the duty ratio changed, and the drive signal producing means produces a drive signal to move the carriage means on a basis of both the changed periodic signal produced and the error signal produced.

Hamaguchi discloses an access control circuit for use in an optical disk unit. Hamaguchi has (a) target calculation means for calculating a target speed of a linear drive means on the basis of a difference between a distance from a position of the beam spot at the start of the access to a

target track and a number of tracks the beam spot has traversed (see col. 3, line 67 through col. 4, line 4 of Hamaguchi) and (b) driving current supply means for supplying the linear drive means with a driving current for accelerating or decelerating the sliding speed of the linear drive means according to the output of the adding means so as to adjust the actual speed of the linear drive means on the basis of the target speed thereof (see Hamaguchi, col. 4, lines 14-19).

In Hamaguchi, the duty ratio change is exclusively utilized to obtain the target speed of the linear drive means when carrying out a rapid seek to the target track. On the contrary, the duty ratio change according to the present invention is utilized to make a positional determination of an optical beam spot relative to the target position thereof. Accordingly, Hamaguchi's duty ratio change and that of the present application are quite different in objective utilization. More specifically, the object of Hamaguchi's duty ratio change is to control the sliding speed of the linear drive means on the basis of the target speed thereof. On the contrary, the object of the duty ratio change according to the present application is to solve the problem of fluctuation in operation of the carriage motor due to an eccentric motion of the optical disc, so as to improve a positional determination accuracy of the optical beam spot, which can be achieved by movement of an objective lens and operation of the carriage motor.

Due to the above-mentioned difference in the duty ratio change, there is no need to utilize any tracking error signal in order to make a duty ratio change in Hamaguchi. As a result, Hamaguchi does not disclose "error signal producing means for producing an error signal showing an error between a

radiated position of the optical beam on the recording medium and a position of the track”, as recited by claim 1 of the present application. Moreover, Hamaguchi does not disclose “drive signal producing means for producing a drive signal to move the carriage means on a basis of both the changed periodic signal produced and the error signal produced”, as recited by claim 1 of the present application.

MPEP 2131 states that a “claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference,” quoting *Verdegaal Bros v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). Since the cited reference does not teach the above-quoted features of claim 1, the Applicant believes that claim 1 should be allowed. Claim 2 should also be allowed, at least by virtue of their dependency from claim 1. Claim 21 should be allowed for the same reasons as claim 1.

The Applicant respectfully submits that all pending claims are patentable and reconsideration of this application is respectfully requested.

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(Date of Deposit)

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(Signature)

10/27/03

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Respectfully submitted,



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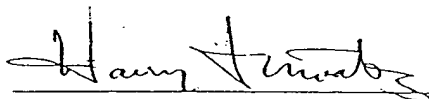
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